

A note on the Jinomori horse, *Equus nipponicus* Shikama and Onuki (Mammalia, Equidae), and some other equine remains from Japan.

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Abstract. The species *Equus nipponicus* Shikama and Onuki is a true horse, possibly even a domestic animal, not an Asiatic wild ass. It has been dated to $1,530 \pm 60$ years B.P.

Key words: *Equus*, Japan, late Pleistocene–Holocene

Shikama and Onuki (1962) described a new species of horse, *Equus nipponicus*, from allegedly late Pleistocene beds of Jinomori, Iwate Prefecture, and from two other localities in northern Honshu, Japan. They believed *Equus nipponicus* to differ in dental morphology and small size both from the true horse (*E. caballus* L., including *E. przewalskii* Polj.) and from the Asiatic wild ass (*E. hemionus* Pallas). *Equus nipponicus* has since been referred to as a sub-species of the Asiatic ass (Kahlke, 1975; Kamei, 1981; Kuzmina, 1989), probably because of its small size.

By the courtesy of Prof. Kei Mori, Institute of Geology and Paleontology, Tohoku University, Sendai, I was allowed to borrow and to date the type material of *E. nipponicus* from Jinomori. The sample (collection No. 66164) consists of the right and left, somewhat worn upper and lower teeth, probably of a single male individual. The teeth are clearly not those of an Asiatic ass, but of a true or caballoid horse (Shikama and Onuki, 1962, plates 14–15), as shown by the U-shaped entoflexid and lingually directed metaconid and metastylid. Dr. Högne Jugner and his team at the Dating Laboratory of the University of Helsinki kindly did a radiometric dating of a piece of the jaw, which gave an age of $1,530 \pm 60$ years B.P. (Hela-155). The late age and the morphology of the specimens indicate that they probably belong to a domestic horse (*E. caballus*), which may also explain their small size.

In addition to the finds from Iwate and Miyagi Prefectures described by Shikama and Onuki (1962), fossil/subfossil horses have been found from several other localities in Japan, i.e. from Keisei and Kuroi (Shikama, 1938, citing Tokunaga, 1934), from Tsukinoki (Shikama, 1938), from Kotari (Kamei, 1981, citing Naora, 1942), and from Shioda (Kamei and Taruno, 1973, Kamei, 1981), all on Honshu. The latter was referred to as an Asiatic ass. The oldest find, an isolated tooth from Tsukinoki, is said to be mid-Pleistocene in age; the youngest find is from Kyushu and Neolithic in age

(Shikama, 1938, citing Hasebe, 1925). Aside from our work only the Shioda find has been radiometrically dated, its age being determined as $28,400 \pm 1,800$ B.P. (Kamei and Taruno, 1973).

The radiometric ages of the known Japanese fossil/subfossil horses would be very interesting, as they could throw light on the first appearance and survival of the horse in Japan. Horses are poor migrants across water (Sondaar, 1977), thus they probably arrived in Japan over land from the Asiatic continent during a period of low sea level. In the late Pleistocene, between 35,000 B.P. or earlier and 18,000 B.P., the sea level is believed to have dropped 130 m (Manabe, 1977, citing Nakagawa, 1967). Possible routes of distribution were via Korea from northeastern China or via Sakhalin from southeastern Russia; moderately sized true horses lived in both areas. If wild horses survived in Japan in the Neolithic, domestication may have happened in situ, the Japanese domestic horse still showing molecular similarity with the Mongolian domestic horse and the until recently extant wild Przewalski's horse (Ishida *et al.*, 1995, fig. 2).

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